

# **COMPILATION OF APPROVED SPECIFICATIONS**

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION**

**REVISIONS  
SUPPLEMENTAL SPECIFICATIONS  
SPECIAL PROVISIONS**

**SUPPLEMENT NO. 12**

**DECEMBER 2011**

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Revise **Subsection 202.03; Excavation and Embankment – Construction Methods**, pages 2-13 through 2-19 of the RI Standard Specifications for Road and Bridge Construction as follows:

## SECTION 202

### EXCAVATION AND EMBANKMENT

- **Replace Subsection 202.03.2(b); Roadway Embankment-Earth in its entirety with the following.**

**b. Roadway Embankment-Earth.** Roadway embankments may consist of earth excavation, borrow material, or a combination thereof. Unless the Department mandates the sequencing of materials in the embankment, borrow material shall not be placed until all suitable and accessible materials from all structure, trench, and roadway excavations have been placed. If the Contractor places more borrow than is required and thereby causes a waste of excavation, the amount of such waste will be deducted from the borrow volume as measured.

When borrow material is required to construct embankment, the Contractor shall make his own arrangements to procure the borrow material or open a borrow source. The Contractor shall also determine the suitability of the borrow material for use in embankment by appropriate laboratory testing.

All roadway earth embankment sections shall be constructed in horizontal lifts not exceeding 15 inches (before compaction) and shall be compacted as specified in **Subsection 202.03.3 Compaction-General** before the next lift is placed.

Each lift shall be placed to the full width of the embankment section unless otherwise directed. If the full width of the embankment section cannot be placed at one time, the lifts shall be stepped back at least the length of the lift thickness to allow for benching of the remaining fill.

The entire area of each lift shall be uniformly compacted to at least the required minimum density by use of compaction equipment consisting of rollers, compactors or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes shall not be considered as compaction equipment.

The moisture content of all roadway embankment materials at the time of compaction shall be that suitable for the soil to meet the required density as specified in **Subsection 202.03.3 Compaction – General** but in no case shall it exceed 2.5% above the Optimum Moisture Content as determined by AASHTO T180. The following applies even if the moisture content is below the allowable upper limit: As observed by the Engineer, should the compacted lift exhibit instability as evident by pumping or rutting under equipment, insufficient moisture as evident by dusting, or excessive moisture or saturation, the Contractor shall make corrections to the lift at no additional cost to the State.

As the compaction of each lift progresses, continuous leveling and manipulating will be required to attain uniform density. Water shall be added or removed, if necessary, in order to obtain stability and the required density. Construction equipment shall be routed uniformly over the entire surface of each lift.

If the natural-in-place moisture of the excavated material makes it impractical to compact the soil, the Contractor shall dry the soil by disking, harrowing, blading or other approved means. If these methods do not produce the specified compaction, the Contractor shall strip and replace the soil.

The embankment shall be crowned to shed runoff and constructed such that side slopes are protected from erosion.

[Remainder of Subsection is unchanged]

• **Replace Subsection 202.03.3; Compaction-General in its entirety with the following.**

**202.03.3 Compaction-General.** Each lift shall be uniformly compacted to the specified density before the next lift is placed. The specified density shall be obtained by utilizing any approved compaction equipment such as: pneumatic tired compaction equipment, or three-wheeled power rollers, or vibratory, sheepsfoot, or tamping rollers, or other approved types of compaction equipment.

Dumping and rolling areas shall be kept separate, and no lift shall be covered by another until the compaction requirements of this Subsection have been met. Hauling and leveling equipment shall be routed and distributed over each lift of the fill so as to make best use of that compaction effort.

**a. Densities.**

1. Maximum dry density and optimum moisture content will be determined by AASHTO T180.
2. Field density of soil in place shall be determined by either AASHTO T191 or a nuclear moisture density gauge conforming to AASHTO T310.
3. The method of correcting for oversize particles in soil compaction test results shall conform to AASHTO T224.
4. The Method Specification for Compaction of Soils as described in Para. d. shall apply if an approved soil does not meet the parameters set by AASHTO T180.

**b. Compaction of Earth Embankment.**

**1. Subgrade.** Where the resulting subgrade surface is the bottom of an excavation (i.e. undisturbed existing ground), the subgrade surface shall be compacted as required, to not less than 95 percent of maximum dry density. When a nuclear density gauge is used, the in place dry density will be measured by the direct transmission method per AASHTO T 310 to a depth of 12 inches below the exposed surface.

As observed by and at the discretion of the Engineer, determinations may be made of instability and excessive or insufficient moisture of the subgrade material and in such cases, the Contractor shall correct the lift at no additional cost to the State.

**2. Embankment Sections.** Where embankment sections are greater than 3 feet in height above existing ground, the earth in embankment sections below a plane of three feet below subgrade shall be compacted to not less than 90 percent of maximum dry density. The remainder of the roadway section up to subgrade shall be compacted to 95 percent of maximum dry density. When a nuclear density gauge is used, the in place dry density will be measured by the direct transmission method per AASHTO T 310 to a depth of 12 inches below the exposed surface or equal to the height of the lift thickness, whichever is smaller.

As observed by and at the discretion of the Engineer, determinations may be made of instability and excessive or insufficient moisture of the embankment material and in such cases, the Contractor shall correct the lift at no additional cost to the State.

**c. Compaction of Rock Embankment.** Rock fill layers shall be sized, placed, and choked as described in **Subsection 202.03.2; Para. c.**

**d. Method Specification for Compaction of Soils.** This specification is to be used when an approved soil does not meet the parameters set by AASHTO T180.

1. A test strip shall be prepared of adequate size (approximately 100 SY) and at the appropriate lift thickness for the section.

(a) The test strip shall be uniformly compacted with two (2) passes of adequately sized piece of compaction equipment such as a vibratory steel drum roller or a plate compactor with a minimum centrifugal force rating of 5,000 lbs.

The number of roller passes is the number of times the area was rolled with the compaction equipment. e.g. forward and backward is two (2) passes.

(b) The in place field density of the test strip will be determined by the Engineer using either AASHTO T191 or a nuclear moisture density gauge conforming to AASHTO T310 in accordance with **Subsection 202.03.3, Para a.** If high gravel content impedes the use of direct transmission, then the backscatter mode will be used. In the backscatter mode, two tests performed in opposite directions over the same test spot will be averaged and recorded as a single test.

Water shall be added to the area before proceeding if the moisture content is below 3%. Care shall be taken to avoid saturating the area.

(c) Compaction shall continue on the test strip with 1 or 2 additional passes of the compaction equipment. The test area will be re-tested in the same manner as in paragraph b. for moisture and density relations and the results will be compared to the first test.

This procedure will continue until the results of three (3) consecutive density tests are within 1% of each other.

(d) The total number of roller passes required to satisfy the previous step will be established as the minimum number of roller passes required for the roller pattern. Thereafter for production, additional density testing will not be required, unless the material and/or equipment have changed as described in e. below.

(e) A new test strip is required for:

(i.) each source of material

(ii) each specific compaction equipment used

(iii) whenever the material appears to have changed

(iv) whenever the moisture content appears to have changed

2. Upon establishing the approved equipment and roller pattern for production, a visual inspection of each compacted lift will be performed by the Engineer and subsequent lifts shall be placed only upon approval by the Engineer.

Replace **Subsection 601.03.7(a); Testing of Concrete – Process Control of Concrete**, page 6-17 of the RI Standard Specifications for Road and Bridge Construction with the following:

## **SECTION 601**

### **PORTLAND CEMENT CONCRETE**

#### **601.03.7 Testing of Concrete.**

**a. Process Control of Concrete.** In the production and placement of all Portland cement concrete, the Contractor shall be responsible for the process control of all materials during the handling, blending, mixing and placement operations.

The Contractor shall have a competent and experienced concrete technician in charge of the mixing operations and overall quality control. Production control procedures shall be such to insure that the concrete produced complies with these Specifications.

The Contractor shall furnish a sufficient number of concrete curing boxes, as determined by the Engineer, that meet the requirements of **Subsection 929.03.6 para. c** of these Specifications in order to accommodate all concrete test cylinders for all specified curing locations for each concrete placement. The curing boxes will be used for curing of accepted concrete test specimens, and will be required for all classes of concrete.

[Remainder of Subsection is unchanged]

Remove **Section 905; Sidewalks and Driveways**, pages 9-9 through 9-12 of the RI Standard Specifications for Road and Bridge Construction in its entirety and replace with the following.

## **SECTION 905**

### **SIDEWALKS AND DRIVEWAYS**

**905.01 DESCRIPTION.** This work consists of constructing sidewalks, wheel chair ramps, and driveways on prepared gravel bases at the locations indicated on the Plans or as directed by the Engineer, all in accordance with these Specifications.

Sidewalks and driveways may be constructed of either bituminous concrete or Portland cement concrete, as indicated on the Plans.

#### **905.02 MATERIALS.**

**905.02.1 Portland Cement Concrete.** Portland cement concrete for sidewalks, wheel chair ramps, typical driveways and commercial driveways shall conform to the requirements as set forth in **Subsections 601.01.1; Classification, and 601.03.1; Proportioning**, of these Specifications. Concrete for sidewalk applications shall be modified by the addition of 10% to 20% ground granulated blast furnace slag (GGBFS) or fly ash as a replacement for Portland cement per **Section 602** of these Specifications.

**905.02.2 Bituminous Concrete.** Bituminous concrete for sidewalks, wheel chair ramps, and driveways shall be as noted on the plans and shall conform to the applicable requirements of **Subsection 401.02** of these Specifications. Coarse and fine aggregates, mineral filler, and asphalt cement shall be combined to produce sidewalk and driveway pavements in accordance with the requirements listed under the column heading entitled, "CLASS I-2 or SIDEWALK" in **Subsection M.03.01** of these Specifications.

Performance-graded asphalt cement shall conform to the requirements of **Subsection M.03.02.1** of these Specifications.

#### **905.02.3 Other Materials.**

**a. Gravel Borrow** shall conform to the requirements set forth in **Subsection M.01.02** of these Specifications.

**b. Reinforcing**, when required, shall be wire-fabric that conforms to the requirements of **Subsection M.05.02.1** of these Specifications.

#### **905.03 CONSTRUCTION METHODS.**

**905.03.1 Scheduling Sidewalk Construction.** The Contractor shall schedule sidewalk construction activities such that no areas are left without paved sidewalks for more than seven consecutive calendar days. This means that once the Contractor commences the removal of existing sidewalks at any location within the project, the construction of new sidewalks at that particular location must be completed within seven consecutive calendar days.

Removal of sidewalks shall be performed in accordance with the provisions of **Subsection 201.03.7** of these Specifications.

The Contractor may be required to saw cut and remove the existing sidewalk 2 feet behind the face of the curb and complete curb-related activities prior to removing the adjacent remaining sidewalk area. Should this work be noted on the plans and/or in the specifications, then saw cutting and any required temporary sidewalk patching material will be paid for under separate and appropriate pay items as noted in the contract's proposal.

**a. Failure to Comply.** If the Contractor fails to complete the construction of any portion of new sidewalks in accordance with this **Section 905**, the daily charge set forth in **Special Provision Code 905.1000** will be deducted from monies then due the Contractor as a charge for failure to comply with these Specifications. Moreover, the stated daily charge will apply for every calendar day that the Contractor fails to comply with this specification.

**905.03.2 Compliance with the Americans with Disabilities Act.** To comply with the requirements of the Americans with Disabilities Act (ADA), sidewalks shall provide a minimum clearance of 36 inches of width at point of narrowing, excluding the curb width, and 48 inches of continuous width elsewhere. The Contractor shall verify with the Engineer that these requirements can be met prior to completing the construction of new sidewalks. Under no circumstances shall any sidewalks be constructed without prior approval of the Engineer if it is determined that these requirements cannot be attained.

### **905.03.3 Portland Cement Concrete Sidewalks and Driveways.**

**a. Excavation.** Excavation shall be made to the required depth and to a width that will permit the installation and bracing of the forms. All existing material, including gravel borrow, shall be excavated to the limits indicated on the Plans. The foundation shall be shaped and compacted to a firm even surface conforming to the section shown on the Plans. All unsuitable material shall be removed and replaced with acceptable material.

**b. Gravel Borrow Subbase.** The gravel base shall be placed in layers not over 6 inches in depth and compacted to the specified depth below finish grade.

**c. Forms.** Forms shall be of wood or metal and shall extend for the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without springing. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.

**d. Box forms.** Box forms shall be formed around all appurtenances extending into and through the sidewalk. The contractor shall fill all box forms with sand immediately upon placement of the sidewalk. Sand shall be flush with the sidewalk surface. There will be no separate payment for either the material, placement or removal of the sand placed in box out areas, these costs shall be considered incidental to this contract. The final material used to fill inside the box form areas shall be the same as that specified for the sidewalk.

**e. Placing Concrete.** The foundation shall be thoroughly moistened immediately prior to the placing of the concrete. The proportioning, mixing and placing of the concrete shall be in accordance with the requirements for the class of concrete specified.

**f. Finishing.** The surface shall be finished with a wooden float. No plastering of the surface will be permitted. All outside edges of the slab and all joints shall be edged with a 1/4-inch radius edging tool.



**g. Joints.** Expansion joints shall be of the dimensions specified, and shall be filled with an approved type of premoulded expansion joint filler. Sidewalks and driveways shall be divided into sections by dummy joints formed by a jointing tool or other acceptable means as directed. These dummy joints shall extend into the concrete for at least 1/3 of the depth and shall be approximately 1/8-inch wide. At no time shall the distance between transverse and/or longitudinal dummy joints exceed 5 feet.

Construction joints shall be formed around all appurtenances extending into and through the sidewalk. Premolded expansion joint filler 1/4-inch thick shall be installed in these joints. Expansion joints shall be placed every 20 feet. The forcing of premoulded expansion joint filler into freshly placed concrete will not be allowed.

Expansion joint filler shall be installed between concrete sidewalks and any fixed, smooth structure such as a building or bridge. This expansion joint material shall extend for the full depth of the walk. If the sidewalk abuts an irregular wall, foundation or stationary object, the expansion joint filler shall be placed 4 inches from the irregular surface and concrete placed between the irregular surface and the expansion joint material.

The maximum tolerance for the 4-inch concrete thickness is plus-or-minus 1/2-inch.

**h. Curing.** Concrete shall be cured for at least 72 hours. Curing shall be by means of moist burlap mats or by other approved methods as set forth in **Subsection 601.03.8; Curing**, of these Specifications. During the curing period all traffic, both pedestrian and vehicular, shall be excluded. Vehicular traffic shall be excluded for such additional time as the Engineer may direct.

**i. Cutting and Matching Existing Concrete Sidewalks or Driveways.** Where a newly constructed sidewalk and/or driveway abuts an existing sidewalk or driveway, the existing sidewalk or driveway shall be cut with a concrete saw only. The concrete saw shall conform to **Subsection 501.03.2; Para. c** of these Specifications.

After installation of the concrete driveway, the contractor shall match bituminous pavement adjacent to parking areas, walkways, and driveways within 14 days.

#### **905.03.4 Bituminous Sidewalks and Driveways.**

**a. Excavation and Forms.** Excavation and forms shall meet the requirements of **Subsections 905.03.3; Paras. a and c**, respectively. The limits of excavation will be as shown on the Plans, or as directed by the Engineer. All material within the limits of excavation must be removed and replaced with gravel borrow subbase.

**b. Gravel Borrow Subbase.** Gravel material shall be placed in layers not exceeding 6 inches in depth and each layer shall be compacted as specified in **Subsection 301.03.2** of these Specifications.

**c. Placing Bituminous Sidewalk and Driveway Material.** Bituminous sidewalk and driveway material shall be placed on the compacted base in one or more courses as indicated to give the required depth when rolled. Compaction shall be accomplished by means of a power roller of a type and weight acceptable to the Engineer. In areas inaccessible to the roller, hand tamping or hand roller will be permitted. In any case, the bituminous material shall be uniformly compacted.

The Contractor shall simultaneously extend the binder and Type I-1 surface course from the project roadway into all driveways which are not constructed with Portland cement concrete for a length of 3 feet, thereby eliminating cold joints at the gutter line.

**905.04 METHOD OF MEASUREMENT.**

**905.04.1 Portland Cement Sidewalks and Driveways.** "Portland Cement Concrete Sidewalks and Driveways" will be measured by the number of cubic yards of pavement actually placed in accordance with the Plans and/or as directed by the Engineer.

**905.04.2 Bituminous Concrete Sidewalks and Driveways.** "Bituminous Concrete Sidewalks and Driveways" will be measured by the number of tons of pavement material actually placed in accordance with the Plans and/or as directed by the Engineer.

**905.05 BASIS OF PAYMENT.**

**905.05.1 Portland Cement Concrete Sidewalks and Driveways.** The accepted quantities of "Portland Cement Concrete Sidewalks and Driveways" will be paid for at the contract unit price per cubic yard as listed in the Proposal. A maximum 5 percent overrun of the calculated quantities based on the required thickness as shown on the Plans is permissible. The price so stated constitutes full and complete compensation for all labor, materials and equipment, including expansion joint material, reinforcement, and all other incidentals required to finish the work, complete and accepted by the Engineer. Excavation and gravel borrow subbase will be paid for separately under appropriate work items.

**905.05.2 Bituminous Concrete Sidewalks and Driveways.** The accepted quantities of "Bituminous Concrete Sidewalks and Driveways" will be paid for at the contract unit price per ton as listed in the Proposal. A maximum 10 percent overrun of the calculated quantities based on the required thickness as shown on the Plans is permissible in accordance with the provisions of **Subsection 401.04.1(b)** of these Specifications. The price so-stated constitutes full and complete compensation for all labor, materials and equipment, and all other incidentals required to finish the work, complete and accepted by the Engineer.

Excavation and gravel borrow subbase will be paid for separately under appropriate work items.

**CODE 905.1000**

**SIDEWALKS**

**(Job Specific)**

**DESCRIPTION: Subsection 905.03.1(a) - Failure to Comply,** In the event the Engineer determines that new sidewalks have not been constructed within the seven consecutive calendar days required by **Subsection 905.03.1(a)** of these Specifications, a daily charge will be deducted from monies due the Contractor.

The charge for this Contract will be \$\_\_\_\_\_ per day, for each day that the Contractor is not in compliance with **Subsection 905.03.1(a)** of these Specifications.

Remove **Specification 929.1000; Field Offices and Materials Laboratory**, pages AC-113 and AC-114 of the Compilation of Approved Specifications, January 2011 in its entirety and replace it with the following

**929.1000**

**FIELD OFFICES AND MATERIALS LABORATORY**

**DESCRIPTION.** The items of computer equipment and software to be provided for this Contract in accordance with **Para. c. of Subsection 929.03.5; Special Requirements for Field Office**, of the RI Standard Specifications for Road and Bridge Construction, 2004 Edition, consist of the following

1. One (1) InkJet color printer capable of printing standard and custom paper sizes from 3 by 5 inches to 11 by 17 inches. Print quality shall be 1200 by 1200 dpi minimum resolution for black and white printing and 4800 X 1200 optimized dpi for color printing. It shall be capable of printing up to 20 ppm (black and white) and up to 15 ppm (color).
2. One (1) laser printer capable of printing standard and custom paper sizes from 3 by 5 inches to 11 by 17 inches. Print quality shall be 1200 by 1200 dpi minimum resolution and have a minimum of 64 MB RAM.
3. Two (2) new PC laptop computers with an i3-2.1GHz processor (minimum); 250 GB (5400 rpm) hard drive (minimum); 15" LCD screen (minimum); 4 GB of RAM (minimum); 10/100 network interface card; CD-RW/DVD drive; wireless network card, broadband internet access (3Mbps nominal connection speed) and Internet Service Provider, 9 cell primary battery, two AC/DC power adaptors, extra 9 cell battery, and carrying bag. Installed software shall include: Microsoft Windows 7 (32 or 64 bit) with the latest service packs and security updates, Microsoft Office Professional (2010 version) with latest service packs, Adobe Acrobat Professional 9.0 (or better), AutoCAD 2012 (or better), and Symantec Endpoint Protection 12.1 with subscription support for the life of the project. All installation CDs, licenses, registration codes and user manuals/documentation shall be provided to the Engineer.
4. Two (2) Docking Stations with a minimum of the following: 1 Ethernet RJ-45 port, 4 USB 2.0 ports, VGA, display port, DVI-D, two (2) 101 key enhanced keyboards, two (2) optical mouse with scroll wheel, and two (2) 21" Wide Screen Flat Panel LCD screens (minimum).
5. One (1) 500 GB External Hard Drive.
6. One (1) approved facsimile machine meeting the following minimum standards: desktop transceiver; automatic fax/tel switch with only one phone line needed; 10 page document feeder; 9600 bps modem speed with automatic fallback; answering machine interface; 20 location capacity; one-touch dial with 16 locations; PSTN line connection; monitor speaker; 16 character LCD size; local copy function; status/error indicators; transmit and receive confirmation reports; no more than 15 pounds in weight; 120V-60 HZ power requirement; built-in handset; image control resolution of 200 x 100 ipi at standard, 200 x 200 ipi at fine, and 200 x 400 ipi at super-fine; 16 level gray scale; automatic redial 2 times at 3 minute intervals and 128 KB memory capacity. The Contractor shall provide a separate phone line for the facsimile machine.

7. One (1) desktop copying machine with an automatic document feeder, or a compatible machine approved by the Engineer.
8. Two (2) 10.0 megapixel digital cameras with wide-angle 5X internal optical zoom and 2.5 inch LCD screen. The camera shall be dustproof, waterproof to 13 feet (4 meters), and coldproof to 14°F.
9. The computer equipment and software, cameras and hard drive shall become property of the State after the Contract Completion.
10. Dust shields and a security cabinet capable of physically containing all hardware, software, and accessories.
11. Surge Protectors for all the above equipment.
12. The Contractor shall provide maintenance and supplies for the life of the project. Supplies for both new and existing field office equipment shall include but, are not limited to, 3.5" DSHD floppy disks, CD-R disks with jewel cases, DVD-R disks with jewel cases, CD storage case, toner, inks, all paper, etc. All supplies shall be provided with the original installation of the computer equipment and as required, as soon as possible after notification by the Resident Engineer.
13. On delivery of computer equipment to a field office, the Resident Engineer must contact the **(DoIT)** Service Desk [Service@DoIT.ri.gov](mailto:Service@DoIT.ri.gov) to arrange for State Inventory. The resident engineer must provide the detail spec. of the computer equipment, location of the field site and the completion date of the project. The Resident Engineer must also contact the service desk [Service@DoIT.ri.gov](mailto:Service@DoIT.ri.gov) at the end of the project to pull the computer equipment into DOT State inventory or if the computer equipment needs to move from one location to another.

Remove **SECTION 930; Plant Field Laboratory**, pages 9-58 to 9-62 of the RI Standard Specifications for Road and Bridge Construction in its entirety and replace it with the following:

## **SECTION 930**

### **PLANT FIELD LABORATORY**

**930.01 DESCRIPTION.** This work consists of furnishing a building at the site of the production plant suitable for the housing and use of equipment required to carry out the various tests and for the recording and processing of the results of said tests, all in accordance with these Specifications.

The building shall be for the exclusive use of the Engineer or his representatives for the purpose of testing and recording the results of said testing.

**930.02 LABORATORY BUILDING.** The laboratory building shall not be less than 16 feet wide and 12 feet long and shall have a ceiling height of at least 7½-feet. The floor shall be sturdy, level, and constructed of concrete. The building shall be watertight. There shall be at least three standard windows and a door equipped with an adequate lock. The site shall include restroom facilities that are fully equipped and accessible.

If the Engineer permits, the Plant Field Laboratory may be part of an existing building. In this case, the laboratory portions of the building shall be entirely partitioned off from the remaining unrelated areas. The use of a trailer, utility control rooms such as electric, telephone, water, sewage, etc., as a Department designated laboratory and/or office is not permitted.

The laboratory shall be air conditioned. Adequate and satisfactory lighting, heating and drinking water shall be provided. The Contractor shall furnish all water, fuel, and electrical power required to conduct the various tests. The power provided shall be adequate to simultaneously operate all laboratory equipment and utilities, including an air conditioner if the laboratory is so-equipped. A table, chairs, desk, work bench, fireproof filing cabinet and telephone shall be provided in each laboratory.

In case of fire, theft or breakdown, all equipment involved shall be repaired or replaced by the Contractor. Production of any material may be discontinued at the discretion of the Engineer until the equipment is repaired or replaced. In the event buildings are destroyed or rendered untenable for any reason they shall be replaced within two weeks or as directed. In the interim, the Contractor shall provide temporary facilities for laboratory operations.

When both bituminous and cement concrete mixing plants are located in the same compound and when the Contractor provides one laboratory building for both bituminous and cement concrete testing facilities, duplication of laboratory equipment will not be required with the exception of the computer equipment specified in **Subsection 930.03.3**.

**930.02.1 ADA Considerations.** The Rhode Island Department of Transportation (RIDOT) is committed to providing equal access and opportunity for all persons in conjunction with Federal Law under Title I of the American's with Disabilities Act (ADA).

The United States Access Board defines a reasonable accommodation as; “a modification or adjustment to a job, an employment practice, or the work environment that makes it possible for a qualified individual with a disability to enjoy an equal employment opportunity.”

In keeping with these directives, those private entities that provide field material laboratories utilized by RIDOT staff, especially those with a disability, must ensure that said facilities provide reasonable accommodation to allow Department employees to be efficient and productive in their work. Reasonable accommodations shall be provided in a manner consistent with the ADA, and as found in similar working conditions in RIDOT-owned facilities.

Private entities that provide such facilities must demonstrate to the Department in advance that reasonable accommodations consistent with ADA have been made available.

Department employees should contact RIDOT Human Resources with any reasonable accommodation requests.

### **930.03 LABORATORY REQUIREMENTS.**

**930.03.1 Bituminous Concrete Mixing Plants.** The Contractor shall provide the following at the bituminous mixing plant:

#### **a. Equipment and Supplies.**

1. One automatic bituminous compactor complete with hammer assembly; 4-inch, 10-pound drop hammer and counter, with automatic shutoff.
2. Four bituminous compaction molds complete with mold body, base plate and collar (4-inch inside diameter).
3. One sample splitter ½-inch chute with width - 16 chutes.
4. One sample splitter 2½-inch chute width - 8 chutes.
5. One asphalt ignition oven capable of automatically determining the corrected asphalt content of a 3,000 gram sample. The oven shall have an integral weighing system and printer capable of providing a hard copy of test results. A suitable work area and adequate ventilation for the oven’s exhaust shall be provided. Two pair of heat resistant gloves (Gilson Model SE-31 or equal), two sample trays and a face shield (Gilson Model SE-42 or equal) shall be provided. The internal scale shall conform to **Subsection 930.03.4** of these Specifications. The Contractor shall perform all maintenance of the oven at intervals recommended by the manufacturer.
6. One motor-driven 12-inch sieve shaker, complete with belt driven mechanism to produce combination rocking and tapping action, capacity for 6 full-height 12-inch sieves plus pan and cover; all parts mounted on a sturdy base.
7. One gravity drying oven of rugged construction with 3/8-inch thick insulated walls, minimum inside dimensions to be 18 inches wide, 14 inches deep and 19 inches high, equipped with two expanded metal shelves, automatic thermostat and other controls, a glass thermometer reading 0<sup>o</sup> to 300<sup>o</sup>C by 1<sup>o</sup> divisions.

8. One set of US Standard 12-inch round intermediate height testing sieves with stainless steel mesh. Sizes shall include 1½", 1¼", 1", ¾", ½", ⅜", Nos. 4, 8, 16, 30, 50, 100, and two No. 200, with square openings, two pans and one cover.

9. Six drying pans approximately 10" x 14" x 2½" for use in the oven.

10. One digital scale - 8,000 grams plus/minus 0.1 grams.

11. Two brass wire briquette brushes.

12. Three sieve or sash brushes.

13. Two approved dial type thermometers - 50°F to 500°F.

14. One approved two-burner electric hot plate, UL approved.

15. Metal mixing bowl, 14 inches or greater diameter.

16. Sample splitting tool.

17. Two putty knives.

18. Five metal sampling buckets.

19. Dust masks.

20. Two pairs of suede work gloves.

22. An adequate supply of towels for Marshall core specific gravity test.

23. An approved cleaning solvent for the equipment must be provided.

24. Two pairs of safety goggles and two pairs of gloves for high heat applications.

25. One Marshall core specific gravity apparatus.

26. One Density tank for Marshall core specific gravity.

27. Two sampling spoons.

28. Two spatulas.

29. One shovel.

30. One fire extinguisher (10 lbs. min.).

31. A hood with an exhaust fan or other acceptable means of ventilation.



32. First Aid Kit.**930.03.2 Cement Concrete Mixing Plants.** The Contractor shall provide the following at the concrete mixing plant:

**a. Equipment and Supplies.**

1. One digital platform beam scale, capacity 45 kilograms, sensitivity 5 grams.
2. One approved two-burner electric hot plate, UL approved.
3. One gravity drying oven of rugged construction with 3/8-inch thick insulated walls, minimum inside dimensions to be 18 inches wide, 14 inches deep and 19 inches high, equipped with two expanded metal shelves, automatic thermostat and other controls, a glass thermometer reading 0<sup>o</sup> to 300<sup>o</sup> C. by 1<sup>o</sup> divisions.
4. One Gilson type sieve shaker (Model TS-1) with timer or equivalent, consisting of eight changeable screens; screens to be within US Standard tolerances and have openings as follows: 2½", 2", 1½", 1", ¾", ½", 3/8", No. 4, No. 8, No. 16, and pan. The unit should be enclosed and adequate ventilation shall be provided.
5. One motor-driven portable sieve shaker for operation on 110-volt, 60-cycle single phase current, complete with belt driven mechanism to produce combination rocking and tapping action, capacity for 6 full-height sieves plus pan and cover; all parts mounted on a sturdy base.
6. One set of brass-frame United States Standard testing sieves, all to be full height, 8 inches in diameter and matched for nesting; one each of the following: ¾", ½", 3/8", Nos. 4, 8, 16, 20, 30, 40, 50, 80, two No. 100, and one No. 200 mesh with No. 14 mesh backing, two pans and one cover.
7. Three fine, 2-inch sieve or sash brushes and two brass wire briquette brushes.
8. One set of 8 sturdy pans for drying soils, approximately 10" x 14" x 2¼" of 12-gauge metal.
9. One complete air meter test outfit, 1/4 cubic foot, (Ref. AASHTO T152 and ASTM C231).
10. One complete slump test outfit (Ref. AASHTO T23 and T119).
11. One sturdy pan, 14-gauge metal, with reinforced rims 24" x 24" x 3".
12. One sample splitter ½-inch chute width - 16 chutes.
13. One sample splitter 2½-inch chute width - 8 chutes.
14. One digital scale - 2,000 grams plus/minus 0.1 gram.
15. One small concrete scoop (#1).
16. Two dial thermometers (0<sup>o</sup>F to +160<sup>o</sup>F).
17. Four plastic buckets, 5-gallon capacity.

18. One fire extinguisher (10 lbs. min.).
19. One shovel.
20. One steel brush, long handle.
21. Two putty knives.
22. Two pairs of suede work gloves.
23. One square steel trowel (6-inch length center handle).
24. First-Aid Kit.
25. One plastic storage tote (10-gallon capacity, 24" x 16" x 8.75" minimum).
26. One large concrete scoop (#2).

**930.03.3 Computer Equipment.** The items of computer equipment and software to be furnished, installed, tested, made operational, and maintained within the Plant Field Laboratory are set forth in Special Provision Code 930.1000. If a plant is producing both asphalt and concrete, two complete sets of computer equipment will be required.

Should the Contractor fail to provide any of the supplies or equipment described above and deemed necessary by the Engineer, the State will not accept any mixes or products dispatched from subject site unless otherwise approved by the Engineer.

**930.03.4 Scales.** All scales for bituminous and cement concrete mixing plant testing equipment must be calibrated every six months and must conform to the requirements of applicable Specifications.

**930.03.5 Catalogues.** Catalogs for the above equipment are available at the Department's Materials Laboratory.

**930.04 METHOD OF MEASUREMENT.** Not applicable.

**930.05 BASIS OF PAYMENT.** Provision of "Plant Field Laboratory" will not be paid for separately, but shall be considered a subsidiary obligation of the Contractor, with the costs thereof distributed among the contract unit prices for other items of work.

Remove **Section 935; Removing Bituminous Pavement by Cold Planing**; pages 9-69 and 9-70 of the RI Standard Specifications for Road and Bridge Construction, and JS Specification **935.99; Removing Bituminous Pavement by Micro-Milling**, page AC-123 of the January 2011 Compilation of Approved Specifications and replace them with the following:

## **SECTION 935**

### **REMOVING BITUMINOUS PAVEMENT BY MICRO-MILLING**

**935.01 DESCRIPTION.** This work consists of the removal of bituminous material using micro-milling to a depth specified on the Plans or as directed by the Engineer, all in accordance with these Specifications.

**935.02 MATERIALS.** Not applicable.

#### **935.03 CONSTRUCTION METHODS.**

**935.03.1 Equipment.** The milling equipment for removing the bituminous pavement shall be designed specifically for grinding asphalt surfaces to close tolerances and shall be operated at a rate that will avoid tearing and gouging of the pavement surface. The equipment shall be capable of accurately establishing profile grades and cross slopes, and shall have a positive means for preventing any dust resulting from the operation from escaping into the air. An averaging ski not less than 25 feet in length shall be utilized with the pavement removal equipment on all limited-access highways and on other types of highways when indicated in the Contract Documents.

The equipment furnished by the Contractor shall be in good repair and shall be maintained so as to produce a clean cut to the pavement at all times.

**935.03.2 Control Strip.** The Contractor shall grind a control strip at least 500 feet long with uniformly textured surface and cross section. The milled pavement surface shall have a transverse pattern 0.3 inches or less between the centers of each strike area. The macrotexture shall be 1/16 inches or less as measured using ASTM E965.

**935.03.3 Pavement Grinding.** Upon the approval of the Control Strip by the Engineer, all areas designated for micro-milling shall be ground using the identical procedures, settings and speed, and shall conform in all respects to the requirements for the control strip.

No asphalt cuttings shall remain on the project at the end of the workday. Asphalt cuttings shall be removed and legally disposed of by the Contractor.

Care shall be exercised in cold planing adjacent to roadway joints, roadway appurtenances and face of curbing.

**935.04 Method of Measurement.** "Removing Bituminous Pavement by Micro-Milling" will be measured by the number of square yards of said pavement actually removed in accordance with the Plans and/or as directed by the Engineer.

**935.05 Basis of Payment** – The accepted quantity of "Removing Bituminous Pavement by Micro-Milling" will be paid for at the contract unit price per square yard as listed in the Proposal. The price so-stated constitutes full and complete compensation for all labor, materials, equipment, disposal and all other incidentals required to finish the work, complete and accepted by the Engineer.

Replace **Subsection T-15.03.5; Post Holes**, page T-30 of the RI Standard Specifications for Road and Bridge Construction in its entirety with the following.

### **T.15.03.5**

### **POST HOLES**

**T.15.03.5 Post Holes.** Post holes shall be excavated to the depth and in the position shown on the Plans, or as indicated by the Engineer. A tolerance of plus or minus 3 inches will be permitted in the depth of the holes for wood posts. The exposed portions of the posts shall be set plumb and true to line and grade, and holes shall be backfilled with sound earth and tamped in 6-inch layers in such a way as not to displace the posts.

Post holes to be excavated through an existing concrete or asphalt surface shall be backfilled with earth as prescribed above to within 4 inches of the original grade. After this is completed, 4 inches of concrete shall be placed in the hole and the surface leveled and finished with the original grade.

When sign posts, except U-channels, are to be installed within areas where new concrete or asphalt pavement is to be placed, the following method shall be used. At the post location, a box form will be installed. The side dimension of the box form shall be 4 inches larger than the greatest dimension of the required post, but no less than 8 inches, and its depth shall be 6 inches. The box form shall be firmly anchored and shall be placed such that the top of the box is at the finished grade of the pavement. The pavement shall be installed around the box form. The required post hole shall then be excavated within the area of the box form, and the post will be installed, with the proper backfilling, as described above. All concrete box forms shall conform to **Subsections 905.03.3(c), (d) and (g)** of these Specifications.